High-speed Counter Unit
NX-CT□□□□

OMRON

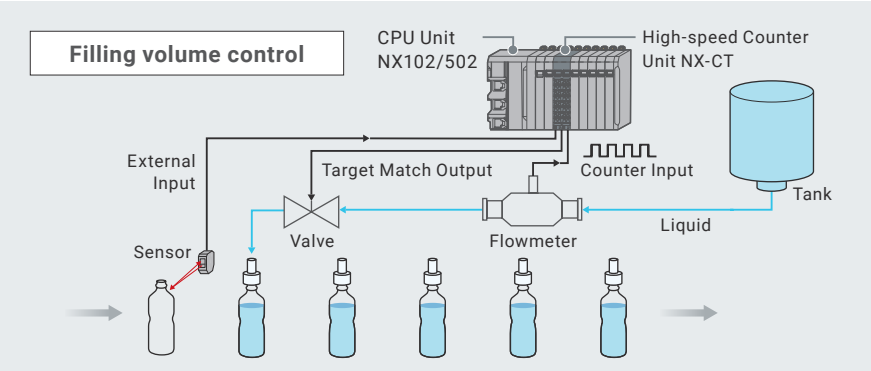
High-speed counter & edge control for reducing waste and loss on the production sites

SYSMAC
always in control

High-speed, high-precision control maximizing added value on the production sites

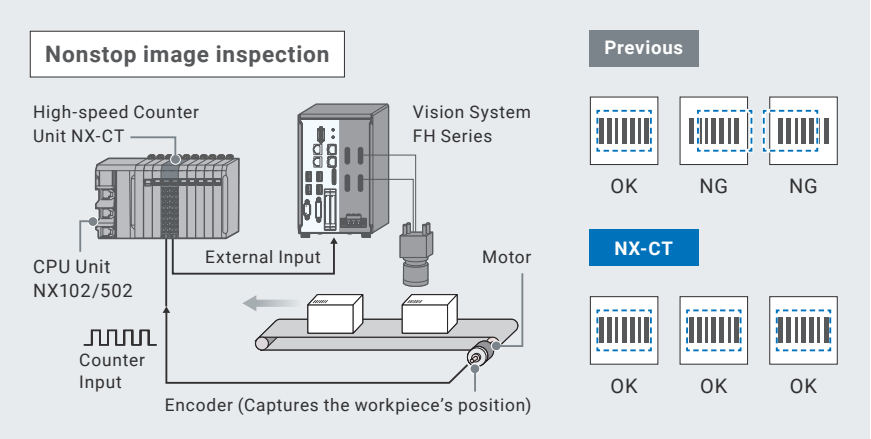
Reducing overfill through correction for delays and fluctuations

Outputting a valve close signal at the timing of the count value reaching the target value often causes overfilling, as there is a delay until the valve closes completely. NX-CT features the Advance Time setting that outputs the signal earlier by the delay time. It also monitors the filling speed internally and adjusts the closing time to prevent overfilling or underfilling caused by flow rate fluctuations.



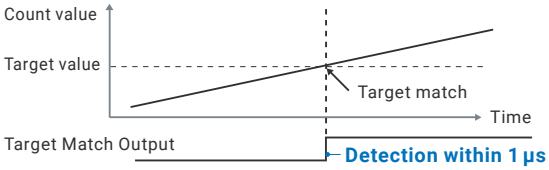
Inspection without slowing down conveyor speed or causing false positive

During inline inspection, variations in conveyor speed prevent capturing an image so that it fits into the camera's field of view, requiring workpieces to pause or slow down. NX-CT's Advance Time setting compensates for vision sensor delays and adjusts output timing in real time, ensuring correct positioning for image capture. This enables both high speed and high inspection quality.



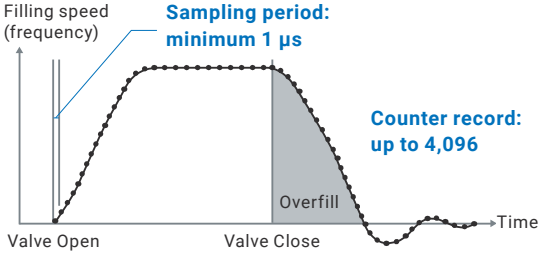
Supporting function

Target Comparison and Output with detection within 1 µs



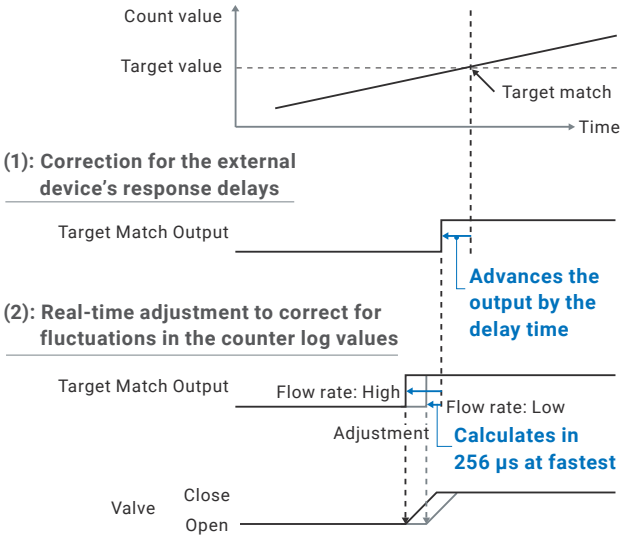
Cycle-Mode Counter Log for collecting real-time fluctuation information

Patent pending



Advance Time to adjust the output timing by correcting for the response delays and the fluctuations

Patent pending



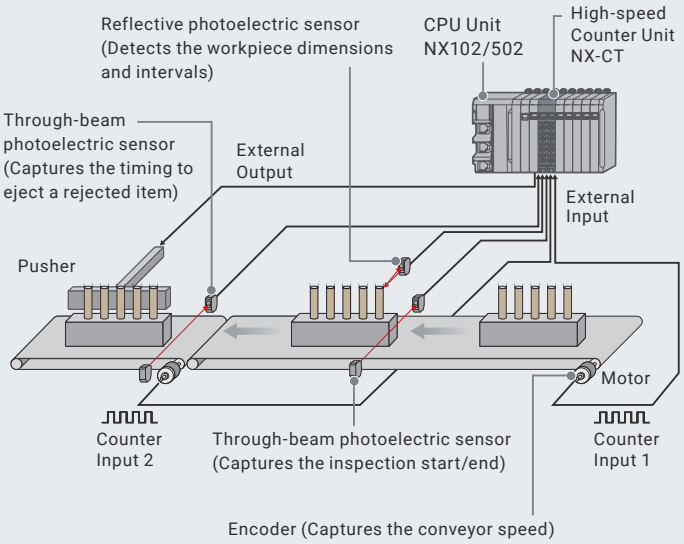
Note: Although the above describes filling volume control, it also works for other applications including nonstop image inspection.

NX-CT features the Counter Comparison function with detection within 1 µs. It achieves high-speed, high-precision control through lightning-fast edge control, which processes signals instantly within the unit. It can reduce waste and loss on production sites caused by control delays, and contribute to production environments that can maximize added value.

Reducing false positives/negatives with pass/fail determination by capturing data for even fast-moving workpieces

Transferring workpieces at shorter cycles than the PLC (several ms) generally overwrites the dimensional log and causes missing measurement data, preventing thorough pass/fail determination. NX-CT can capture external inputs at shorter cycles than the PLC and use the latch log mode to record up to 4,096 count values, ensuring acquisition of complete data utilized for pass/fail determination and improvement.

High-speed dimensional inspection

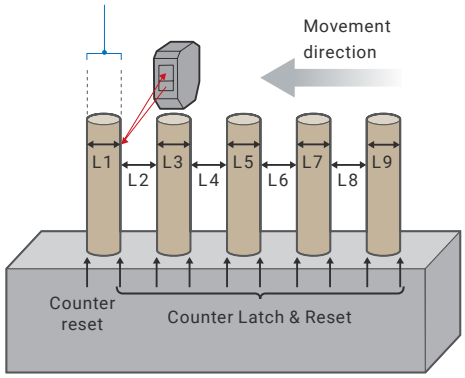


Supporting function

Latch-Mode Counter Log for detecting fast-moving workpieces without compromising accuracy

Captures inputs at shorter cycles than the PLC

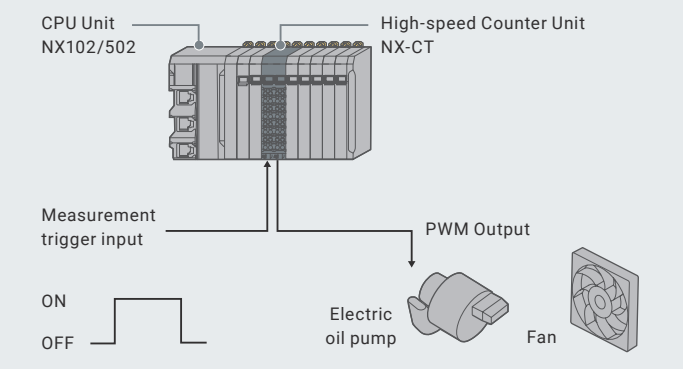
Counter record: up to 4,096



Reducing unnecessary design man-hours, equipment space, and costs

During DC motor shipping inspection, operational testing needs to be performed by simulating actual usage conditions. NX-CT features PWM Output for enabling/disabling output and making the duty cycle setting in 0.1% increments. No special PWM output device is required to perform the inspection. This contributes to reduced design man-hours, space saving, and cost reduction.

DC motor characteristic inspection

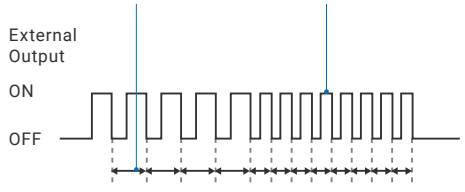


Supporting function

PWM Output without the need for an output unit

Maximum frequency 32.8 kHz

Duty setting from 0 to 100%, in 0.1% increments



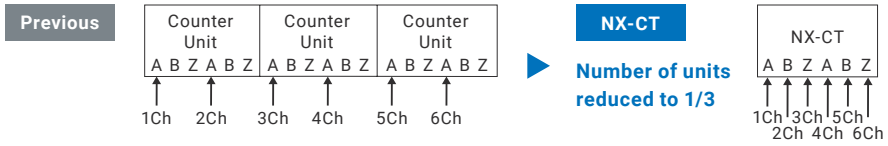
Modulates the pulse width to control the rotation rate

Four functions enabling high-speed, high-precision control

Target Comparison and Output with detection within 1 µs	Advance Time configurable in 1-µs increments	Counter Log capable of recording up to 4,096 entries (Latch Log mode/ Cycle Log mode)	PWM Output with a maximum frequency of 32.8 kHz and duty setting in 0.1% increments

Two functions supporting stable operation and flexible line configuration

Space-saving, low-cost multi-channel input counter (switchable between three-phase (Phase A/Phase B/Phase Z) × 2 channels and single-phase × 6 channels) **Patent pending**



When connecting single-phase pulse output devices × 6 Ch

Counter Noise Filter for reducing miscounts even in noisy environments

Ordering Information

Product name	Specification						Model
	Number of channels*1	External Input	External Output	Maximum response frequency*2	I/O refreshing method	Input method	
High-speed Counter Unit	2 (NPN)	6 (NPN)	6 (NPN)	1 MHz	• Free-Run refreshing • Synchronous I/O refreshing • Task period prioritized refreshing	5 V/24 V voltage input	NX-CT2120
	2 (PNP)	6 (PNP)	6 (PNP)				NX-CT2220
	2	6 (NPN)	6 (NPN)	4 MHz		RS-422 Line receiver input	NX-CT2320
	2	6 (PNP)	6 (PNP)				NX-CT2420

*1. When set to 6ch mode, the counter channel number is 6 channels.
*2. When set to 6ch mode, the maximum response frequency is 100 kHz.

For details, refer to the NX Series High-speed Counter Unit NX-CT□□□□ Datasheet (Cat. No. P174).

Note: Do not use this document to operate the Unit.

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